

WHAT IS CLAIMED IS:

Sub A² 1. A method of facilitating redirection of traffic sent from a first processing device to a second processing device, the method comprising:

5 at a third processing device associated with a plurality of traffic handling systems, receiving traffic information from at least a portion of the associated traffic handling systems, wherein the traffic information specifies which data should be redirected to the portion of associated traffic handling systems; and

10 determining how to redirect data received by the third processing device to a selected traffic handling system based on the received traffic information.

2. A method as recited in claim 1, wherein the determination of redirecting data is accomplished by:

15 communicating the traffic information to at least a designated one of the associated traffic handling systems; and

at the third processing device, receiving traffic redirection information from the designated traffic handling system, the traffic redirection information being based on the communicated traffic information.

3. A method as recited in claim 1, further comprising:

20 at the third processing device, building or updating a data structure based on the received traffic information, wherein the traffic information is communicated to the designated traffic handling system within the data structure.

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4. A method as recited in claim 1, further comprising:
in the third processing device, receiving a packet from the first
processing device destined for the second processing device; and
redirecting the packet to a selected one of the traffic handling systems
based on the traffic redirection information.

5. A method as recited in claim 4, further comprising:
receiving the packet back after redirecting it to the selected traffic
handling system;
determining that the packet is to be sent to the packet's original
destination address instead of being redirected to the selected traffic handling
system; and
sending the packet to its original destination.

6. A method as recited in claim 5, wherein it is determined that the packet is to
be sent to the packet's original destination by determining that the packet is encapsulated and
de-encapsulating the packet prior to sending the packet to its original destination.

7. A method as recited in claim 1, wherein the traffic information sent from a
selected traffic handling system to the third processing device includes service options
specifying which data is to be redirected to the selected traffic handling system.

8. A method as recited in claim 7, wherein the service options include a plurality
of fields that are configurable to indicate that one or more fields of a packet received in the
third processing device are to be used to determined redirection of packets to the selected
traffic handling system.

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9. A method as recited in claim 8, wherein the fields are selected from a group consisting of a source IP field, a destination IP field, a source port field, a destination port field, a source IP alternative field, a destination IP alternative field, a source port alternative field, and a destination port alternative field.

5 10. A method as recited in claim 9, wherein each field indicates that a corresponding field of a packet received in the third processing device is to be used to generate an index to a table identifying the plurality of associated traffic handling systems, the generated index being associated with the selected traffic handling system.

10 11. A method as recited in claim 10, wherein each field indicates that a hashed value of the corresponding field of the received packet is to be used to generate the index to the table identifying the plurality of associated traffic handling systems.

12. A method as recited in claim 8, wherein at least one of the fields may be set to indicate one or more port identifiers of traffic received in the third processing device.

15 13. A method as recited in claim 8, wherein the fields are selected from a group consisting of a port 0 field, a port 1 field, a port 2 field, a port 3 field, a port 4 field, a port 5 field, a port 6 field, and a port 7 field.

14. A method as recited in claim 13, wherein the fields includes a source/destination field to indicate whether the port identifiers of the received traffic are source ports or destination ports.

20 15. A method as recited in claim 6, further comprising:
in the third processing device, receiving a packet from the first
processing device destined for the second processing device; and

Sub A2 → when one or more port identifiers of the received packet matches a corresponding set field of the service options of the selected traffic handling system, redirecting the packet to the selected traffic handling system.

5 16. A method as recited in claim 1, wherein the traffic information sent from a selected traffic handling system to the third processing device includes security options for specifying an authentication level for messages communicated between the third processing device and the selected traffic handling system.

10 17. A method as recited in claim 16, wherein the security options are configurable to select no authentication for messages communicated between the third processing device and the selected traffic handling system.

18. A method as recited in claim 16, wherein the security options are configurable to require a predetermined password encoded within messages communicated between the third processing device and the selected traffic handling system.

15 19. A method as recited in claim 1, wherein the traffic information sent from a selected traffic handling system includes identifying information for the selected traffic handling system.

20. A method of facilitating redirection of traffic sent from a first processing device to a second processing device, the method comprising:

20 at a designated traffic handling system associated with a plurality of traffic handling systems and one or more routers, receiving traffic information from at least one of the routers, wherein the traffic information specifies

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which data should be redirected to which associated traffic handling systems;
and

allocating traffic portions to each traffic handling system based on the
received traffic information.

5 21. A method as recited in claim 20, wherein the traffic portions are allocated by:
building or updating a data structure based on the received traffic
information within a third processing device that receives traffic sent from a
first processing device to a second processing device, the data structure
specifying how to direct traffic received in the third processing device to
10 selected traffic handling systems associated with the third processing device.

22. A method as recited in claim 20, wherein the traffic information includes
service options specifying which data is to be redirected to the selected traffic handling
system.

23. A method as recited in claim 22, wherein the service options include a
15 plurality of fields that are configurable to indicate that one or more fields of a packet
received in the third processing device are to be used to determined redirection of packets to
the selected traffic handling system.

24. A method as recited in claim 23, wherein the flags are selected from a group
consisting of a source IP field, a destination IP field, a source port field, a destination port
20 field, a source IP alternative field, a destination IP alternative field, a source port alternative
field, and a destination port alternative field.

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25. A method as recited in claim 24, wherein each field indicates that a corresponding field of a packet received in the third processing device is to be used to generate an index to a table identifying the plurality of associated traffic handling systems, the generated index being associated with the selected traffic handling system.

5 26. A method as recited in claim 25, wherein each field indicates that a hashed value of the corresponding field of the received packet is to be used to generate the index to the table identifying the plurality of associated traffic handling systems.

27. A method as recited in claim 23, wherein at least one of the fields may be set to indicate one or more port identifiers of traffic received in the third processing device.

10 28. A method as recited in claim 27, wherein the fields are selected from a group consisting of a port 0 field, a port 1 field, a port 2 field, a port 3 field, a port 4 field, a port 5 field, a port 6 field, and a port 7 field.

15 29. A method as recited in claim 28, wherein the fields includes a source/destination field to indicate whether the port identifiers of the received traffic are source ports or destination ports.

30. A method as recited in claim 20, wherein the traffic information includes security options for specifying an authentication level for messages communicated between the third processing device and the selected traffic handling system.

20 31. A method as recited in claim 30, wherein the security options are configurable to select no authentication for messages communicated between the third processing device and the selected traffic handling system.

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32. A method as recited in claim 30, wherein the security options are configurable to require a predetermined password encoded within messages communicated between the third processing device and the selected traffic handling system.

5 33. A method as recited in claim 20, wherein the traffic information includes identifying information for the selected traffic handling system.

34. A method of reinserting a redirected packet into a flow between a first processing device and a second processing device, the method comprising:

receiving a redirected packet from a third processing device in a fourth processing device; and

10 sending the packet back to the third processing device for transmission.

35. A method as recited in claim 34, further comprising encapsulating the redirected packet prior to sending the packet back so as to indicate that the packet is not to be redirected by the third processing device back to the fourth processing device.

15 36. A method as recited in claim 35, wherein the redirected packet is encapsulated in a GRE packet.

37. A method as recited in claim 34, further comprising modifying the redirected packet prior to sending the packet back.

20 38. A method as recited in claim 37, wherein a destination address of the redirected packet is modified prior to sending the packet back.

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39. A method as recited in claim 34, further comprising making a copy of the redirected packet prior to sending the packet back.

40. A first computer system associated with a plurality of traffic handling systems and operable to facilitate redirection of traffic sent from a second computer system to a third computer system, the traffic being redirected to a selected traffic handling system, the computer system comprising:

a memory; and

a processor coupled to the memory,

wherein at least one of the memory and the processor are adapted to provide:

receiving traffic information from at least a portion of the associated traffic handling systems, wherein the traffic information specifies which data should be redirected to the portion of associated traffic handling systems;

communicating the traffic information to at least a designated one of the associated traffic handling systems; and

receiving traffic redirection information from the designated traffic handling system, the traffic redirection information being based on the communicated traffic information.

41. A computer system as recited in claim 40, wherein at least one of the memory and the processor are further adapted to provide:

building or updating a data structure based on the received traffic information, wherein the traffic information is communicated to the designated traffic handling system within the data structure.

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42. A computer system as recited in claim 40, wherein at least one of the memory and the processor are further adapted to provide:

receiving a packet from a second computer system destined for a third computer system; and

5 redirecting the packet to a selected one of the traffic handling systems based on the traffic redirection information.

43. A computer system as recited in claim 42, wherein at least one of the memory and the processor are further adapted to provide:

10 receiving the packet back after redirecting it to the selected traffic handling system;

determining that the packet is to be sent to the packet's original destination address instead of being redirected to the selected traffic handling system; and

15 sending the packet to its original destination.

44. A computer system as recited in claim 43, wherein it is determined that the packet is to be sent to the packet's original destination by determining that the packet is encapsulated and de-encapsulating the packet prior to sending the packet to its original destination.

20 45. A computer system as recited in claim 40, wherein the traffic information sent from a selected traffic handling system includes service options specifying which data is to be redirected to the selected traffic handling system.

46. A computer system as recited in claim 45, wherein the service options include a plurality of fields that are configurable to indicate that one or more fields of a packet

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received in the first computer system are to be used to determined redirection of packets to the selected traffic handling system.

47. A computer system as recited in claim 46, wherein the fields are selected from a group consisting of a source IP field, a destination IP field, a source port field, a destination port field, a source IP alternative field, a destination IP alternative field, a source port alternative field, and a destination port alternative field.

48. A computer system as recited in claim 47, wherein each field indicates that a corresponding field of a packet received in the first computer system is to be used to generate an index to a table identifying the plurality of associated traffic handling systems, the generated index being associated with the selected traffic handling system.

49. A computer system as recited in claim 48, wherein each field indicates that a hashed value of the corresponding field of the received packet is to be used to generate the index to the table identifying the plurality of associated traffic handling systems.

50. A computer system as recited in claim 46, wherein at least one of the fields may be set to indicate one or more port identifiers of traffic received in the computer system.

51. A computer system as recited in claim 50, wherein the fields are selected from a group consisting of a port 0 field, a port 1 field, a port 2 field, a port 3 field, a port 4 field, a port 5 field, a port 6 field, and a port 7 field.

52. A computer system as recited in claim 51, wherein the fields includes a source/destination field to indicate whether the port identifiers of the received traffic are source ports or destination ports.

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53. A computer system as recited in claim 50, wherein at least one of the memory and the processor are further adapted to provide:

receiving a packet from a first processing device destined for a second processing device; and

5 when one or more port identifiers of the received packet matches a corresponding set field of the service options of the selected traffic handling system, redirecting the packet to the selected traffic handling system.

54. A computer system as recited in claim 40, wherein the traffic information sent from a selected traffic handling system to the first computer system includes security options for specifying an authentication level for messages communicated between the first computer system and the selected traffic handling system.

55. A computer system as recited in claim 54, wherein the security options are configurable to select no authentication for messages communicated between the first computer system and the selected traffic handling system.

56. A computer system as recited in claim 54, wherein the security options are configurable to require a predetermined password encoded within messages communicated between the first computer system and the selected traffic handling system.

57. A computer system as recited in claim 40, wherein the traffic information sent from a selected traffic handling system includes identifying information for the selected traffic handling system.

58. A designated traffic handling system associated with a plurality of traffic handling systems and operable to facilitate redirection of traffic sent from a first computer

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system to a second computer system, the traffic being redirected by a third computer system to a selected traffic handling system, the designated traffic handling system comprising:

a memory; and

a processor coupled to the memory,

5 wherein at least one of the memory and the processor are adapted to provide:

receiving traffic information from the third computer system, wherein the traffic information specifies which data should be redirected to which associated traffic handling systems; and

10 allocating traffic portions to each traffic handling system based on the received traffic information.

59. A designated traffic handling system as recited in claim 58, wherein the traffic portions are allocated by:

building or updating a data structure based on the received traffic information within the third processing device that receives traffic sent from the first processing device to the second processing device, the data structure specifying how to direct traffic received in the third processing device to selected traffic handling systems associated with the third processing device.

60. A designated traffic handling system as recited in claim 58, wherein the traffic information includes service options specifying which data is to be redirected to the selected traffic handling system.

61. A designated traffic handling system as recited in claim 60, wherein the service options include a plurality of fields that are configurable to indicate that one or more

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fields of a packet received in the third processing device are to be used to determined redirection of packets to the selected traffic handling system.

62. A designated traffic handling system as recited in claim 61, wherein the fields are selected from a group consisting of a source IP field, a destination IP field, a source port field, a destination port field, a source IP alternative field, a destination IP alternative field, a source port alternative field, and a destination port alternative field.

63. A designated traffic handling system as recited in claim 62, wherein each field indicates that a corresponding field of a packet received in the third processing device is to be used to generate an index to a table identifying the plurality of associated traffic handling systems, the generated index being associated with the selected traffic handling system.

64. A designated traffic handling system as recited in claim 63, wherein each field indicates that a hashed value of the corresponding field of the received packet is to be used to generate the index to the table identifying the plurality of associated traffic handling systems.

65. A method as recited in claim 61, wherein at least one of the fields may be set to indicate one or more port identifiers of traffic received in the third processing device.

66. A method as recited in claim 65, wherein the fields are selected from a group consisting of a port 0 field, a port 1 field, a port 2 field, a port 3 field, a port 4 field, a port 5 field, a port 6 field, and a port 7 field.

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67. A designated traffic handling system as recited in claim 66, wherein the fields includes a source/destination field to indicate whether the port identifiers of the received traffic are source ports or destination ports.

68. A designated traffic handling system as recited in claim 58, wherein the traffic information includes security options for specifying an authentication level for messages communicated between the third processing device and the selected traffic handling system.

69. A designated traffic handling system as recited in claim 68, wherein the security options are configurable to select no authentication for messages communicated between the third processing device and the selected traffic handling system.

70. A designated traffic handling system as recited in claim 68, wherein the security options are configurable to require a predetermined password encoded within messages communicated between the third processing device and the selected traffic handling system.

71. A method as recited in claim 68, wherein the traffic information includes identifying information for the selected traffic handling system.

72. A first processing system operable to reinsert a redirected packet into a flow between a second processing device and a third processing device, the computer system comprising:

a memory; and

a processor coupled to the memory,

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wherein at least one of the memory and the processor are adapted to provide:

receiving a redirected packet from a fourth processing device
in the first processing device; and
5 sending the packet back to the fourth processing device for
transmission.

73. A processing system as recited in claim 72, wherein at least one of the
memory and the processor are further adapted to provide encapsulating the redirected packet
prior to sending the packet back so as to indicate that the packet is not to be redirected by the
10 fourth processing device back to the first processing device.

74. A processing system as recited in claim 73, wherein the redirected packet is
encapsulated in a GRE packet.

75. A processing system as recited in claim 72, wherein at least one of the
memory and the processor are further adapted to provide modifying the redirected packet
15 prior to sending the packet back.

76. A processing system as recited in claim 75, wherein a destination address of
the redirected packet is modified prior to sending the packet back.

77. A processing system as recited in claim 72, wherein at least one of the
memory and the processor are further adapted to provide making a copy of the redirected
20 packet prior to sending the packet back.

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78. A computer program product for facilitating redirection of traffic sent from a first processing device to a second processing device, the computer program product comprising:

at least one computer readable medium;

5 computer program instructions stored within the at least one computer readable product configured to cause a processing device to provide:

10 at a third processing device associated with a plurality of traffic handling systems, receiving traffic information from at least a portion of the associated traffic handling systems, wherein the traffic information specifies which data should be redirected to the portion of associated traffic handling systems;

communicating the traffic information to at least a designated one of the associated traffic handling systems; and

15 at the third processing device, receiving traffic redirection information from the designated traffic handling system, the traffic redirection information being based on the communicated traffic information.

79. A computer program product for facilitating redirection of traffic sent from a first processing device to a second processing device, the computer program product comprising:

20 at least one computer readable medium;

computer program instructions stored within the at least one computer readable product configured to cause a processing device to provide:

at a designated traffic handling system associated with a plurality of traffic handling systems and one or more routers, receiving traffic

information from at least one of the routers, wherein the traffic information specifies which data should be redirected to which associated traffic handling systems; and

on the received traffic information.

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